

BIBLIOGRAPHY

Abdel-Aal el SM, Young JC, Rabalski I (2006) Anthocyanin composition in black, blue, pink, purple and red cereal grains. *J Agric Food Chem* 54(13): 4696-704

Abdel-Aal ES, Abou-Arab AA, Gamel TH, Hucl P, Young JC, Rabalski I (2008) Fractionation of blue wheat anthocyanin compounds and their contribution to antioxidant properties. *J Agric Food Chem* 56: 11171-7

Ahn SN, Bollisch CN, Tanksley SD (1992) RFLP tagging of a gene for aroma in rice. *Theor Appl Genet* 84:825-8

Amarawathi Y, Singh R, Singh AK, Singh VP, Mohapatra T, Sharma TR, et al. (2008) Mapping of quantitative trait loci for basmati quality traits in rice (*Oryza sativa* L.). *Mol Breed* 21: 49-65

Altschul SF, Gish W, Miller W, Myers EW and Lipman DJ (1990) Basic local alignment search tool. *J Mol Biol* 215: 403-10

Altschul SF, Madden TL, Schaffer AA, Zhang J, Zhang Z, Miller W, Lipman DJ (1997) Gapped BLAST and PSI-BLAST: A new generation of protein database search programs. *Nucleic Acids Res* 25: 3389-402

Andersen OM, Jordheim M (2006) The Anthocyanins. In *Flavonoids: Chemistry, Biochemistry and Applications*; Andersen OM, Markham KR, Eds. CRC Press/Francis Group: Boca Raton, FL, USA, pp. 472-551

Arab F, Alemzadeh I, Maghsoudi V (2011) Determination of antioxidant and activity of rice bran extract. *Sci Iran* 18(6): 1402-6

Arumuganathan K, Earle ED (1991) Nuclear DNA content of some important plant species. *Plant Mol Biol Rep* 9(3): 208-218

Astadi IR, Astuti M, Santoso U, Nugraheni PS (2009) In vitro antioxidant activity of anthocyanins of black soybean seed coat in human low density lipoprotein (LDL). *Food Chem* 112: 659-63

Azevedo MA, Felipe MSS, Brígido MM, Maranhão AQ, Sousa MT (2003) *Técnicas básicas em biologia molecular*. Brasília: Universidade de Brasília vol. 2

- Bergman CJ, Delgado JT, Bryant R, Grimm C, Cadwallader KR, Webb BD (2000) Rapid gas chromatographic technique for quantifying 2-acetyl 1 pyrroline and hexanal in rice (*Oryza sativa* L.). *Cereal Chem* 77: 454-8
- Bhattacharjee P, Singhal R S, Kulkarni PR (2002) Basmati rice: a review. *Int J Food Sci Technol* 37: 1-12
- Bilang RS, Zhang N, Leduc VA, Iglesias A, Gisel et al. (1993) Transient gene expression in vegetative shoot apical meristems of wheat after ballistic microtargeting. *Plant J* 4(4): 735-44
- Borevitz JO, Xia Y, Blount J, Dixon RA, Lamb C (2000) Activation tagging identifies a conserved MYB regulator of phenylpropanoid biosynthesis. *Plant Cell* 12:2383-93
- Bourgis F, Guyot R, Gherbi H, Tailliez E, Amabile I, Salse J, et al. (2008) Characterization of the major fragrance gene from an aromatic japonica rice and analysis of its diversity in Asian cultivated rice. *Theor Appl Genet* 10.1007/s00122-008-0780-9
- Butsat S, Siriamornpun S (2010) Phenolic acids and antioxidant activities in husk of different Thai rice varieties. *Food Sci Technol Int* 16:329-36
- Buttery RG, Ling LC, Juliano BO (1982) 2-Acetyl-1-pyrroline: an important aroma component of cooked rice. *Chem Ind (Lond)*12: 958-9
- Bradbury LMT, Fitzgerald TL, Henry RJ, Jin QS, Waters DLE (2005) The gene for fragrance in rice. *Plant Biotech J* 3: 363-70
- Bradbury LMT, Gillies SA, Brushett DJ, Waters DLE, Henry RJ (2008) Inactivation of an aminoaldehyde dehydrogenase is responsible for fragrance in rice. *Plant Mol Biol* 68: 439-49
- Brahmachary RL, Ghosh M (2002) Vaginal pheromone and other compounds in mung bean aroma. *J Sci Ind Res* 61: 625-9
- Causse MA, Fulton TM, Cho YG, et al. (1994) Saturated molecular map of the rice genome based on an interspecific backcross population. *Genetics*138: 1251-74

- Casas AM, Kononowicz AK, Zehr UB, Tomes DT, Axtell (1993) Transgenic sorghum plants via microprojectile bombardment. Proc Natl Acad Sci USA 90: 11212-16
- Chakuton K, Puangpronpitag D, Nakornriab M (2012) Phytochemical content and antioxidant activity of colored and non-colored Thai rice cultivars. Asian JPlant Sci 11(6): 285-93
- Champagne ET (2008) Rice aroma and flavor: a literature review. Cereal Chem 85:445-54
- Chandler VL, Radicella JP, Robbins TP, Chen J, Turks D (1989) Two regulatory genes of the maize anthocyanin pathway are homologous: isolation of B utilizing R genomic sequences. Plant Cell 1:1175-83
- Chaudhary RC (2003) Speciality rices of the world: effect of WTO and IPR on its production trend and marketing. J Food Agric Environ 1:34–41
- Chen S, Yang Y, Shi W, Ji Q, He F, Zhang Z, et al. (2008) Badh2, encoding betaine aldehyde dehydrogenase, inhibits the biosynthesis of 2-acetyl-1-pyrroline, a major component in rice fragrance. Plant Cell 20:1850-61
- Chen SH, Wu J, Yang Y et al. (2006) The *fgr* gene responsible for rice fragrance was restricted within 69 kb. Plant Sci 171: 505-14
- Choi HC (2000) Current status and perspectives in varietal improvement of rice cultivars for high-quality and value-added products. Kor J Crop Sci 47:15-32
- Choi Y, Jeong H, Lee J (2007) Antioxidant activity of methanolic extracts from some grains consumed in Korea. Food Chem 103: 130-38
- Cone KC, Cocciolone SM, Burr FA, Burr B (1993) Maize anthocyanin regulatory gene *pl* is a duplicate of *cl* that functions in the plant. Plant Cell 5: 1795-805
- Cordeiro GM, Christopher MJ, Henry RJ, Reinke RF (2002) Identification of microsatellite markers for fragrance in rice by analysis of the rice genome sequence. Mol Breeding 9: 245-50

- Das KR, Medhabati K, Nongalleima Kh, Sunitibala DH (2014) The potential of dark purple scented rice- from staple food to nutraceutical. *Curr World Environ* 9(3):867-76
- Devi HP, Mazumder PB, Devi LP (2015) Antioxidant and antimutagenic activity of *Curcuma caesia* Roxb. rhizome extracts. *Toxicology Reports* 2: 423–428
- Diplock AT, Charleux JL, Crozier-Willi G, Kok FJ, Rice-Evans C, Roberfroid M, Stahl W, Vina Ribes J (1998) Functional food science and defence against reactive oxidative species. *Brit J Nutr* 80:77-112.
- Dr. Axe (2015) The Forbidden Rice: Black Rice Nutrition & Benefits DOI <http://draxe.com/forbiddenrice/> 7/24/2015
- Doyle JJ, Doyle JL (1987) A rapid DNA isolation procedure for small quantities of fresh leaf tissue. *Phytochem Bull* 19:11-15
- Doyle JJ, Doyle JL (1990) Isolation of plant DNA from fresh tissue. *Focus* 12: 13-15
- Duthie SJ, Jenkinson AM, Crozier A, Mullen W, Pirie L, Kyle J, et al. (2006) The effects of cranberry juice consumption on antioxidant status and biomarkers relating to heart disease and cancer in healthy human volunteers. *Eur J Clin Nutr* 45(2): 113-22
- Fitzgerald MA, McCouch SR, Hall RD (2009) Not just a grain of rice: the quest for quality. *Trends Plant Sci* 14:133-9
- Fitzgerald MA, Sackville Hamilton NR, Calingacion MN, Verhoeven HA, Butardo VM. Is there a second fragrance gene in rice? *Plant Biotech J* 2008 6:416-23
- Fitzgerald TL, Waters DLE, Henry RJ (2007) Analysis of BAD gene expression in *Oryza sativa* using qRT-PCR. Southern Cross Plant Science, Southern Cross University ePublications@SCU
- Florea L, Hartzell G, Zhang Z, Rubin GM, Miller W (1998) A computer program for aligning a cDNA sequence with a genomic DNA sequence. *Genome Res* 8: 967–974
- Fukumoto LR, Mazza G (2000) Assessing antioxidant and prooxidant activities of phenolic compounds. *J Agric Food Chem* 48: 3597-604

- Furukawa T, Maekawa M, Oki T, Suda I, Iida S, Shimada H, Takamure I, Kadowaki K (2007) The *Rc* and *Rd* genes are involved in proanthocyanidin synthesis in rice pericarp. *The Plant J* 49: 91-102
- Galway ME, Masucci JD, Lloyd M, Walbot V, Davis RW et al. (1994) The *TTG* gene is required to specify epidermal cell fate and cell patterning in the *Arabidopsis* root. *Dev Biol* 166: 740-54
- Garland S, Lewin S, Blakeney A, Reinke R, Henry R (2000) PCR-based molecular markers for the fragrance gene in rice (*Oryza sativa* L.). *Theor Appl Genet* 101:364–71
- Gholivand MB, Piryaei M (2014) Total phenols, flavonoids, anthocyanins, ascorbic acid contents and antioxidant activity of *Rhamnus kurdica* Boiss for flower and leaves in flowering and pre-flowering stages. *Afr J Biotechnol* 13(10):1131-35
- GiustiMM, Wrolstad RE (2001) in *Current Protocols in Food Analytical Chemistry*, RE Wrolstad (Ed.), John Wiley & Sons, New York, NY, pp. 1–13
- Gish W, States DJ (1993) Identification of protein coding regions by database similarity search. *Nat Genet* 3:266-72
- Goff SA, Klein TM, Roth BA, Fromm ME, Cone KC et al. (1990) Transactivation of anthocyanin biosynthetic genes following transfer of B regulatory genes into maize tissues. *EMBO J* 9:2517-2522.
- Goff SA, Cone KC, Chandler VL (1992) Functional analysis of the transcriptional activator encoded by the maize B gene: evidence for a direct functional interaction between two classes of regulatory proteins. *Genes Dev* 6: 864-875.
- Goff SA, Ricke D, Lan TH, Presting G, Wang RL et al. (2002) A draft sequence of the rice genome (*Oryza sativa* L. *ssp japonica*). *Science* 296: 92-1001
- Goffman FD, Bergman CJ (2004) Rice kernel phenolic content and its relationship with antiradical efficiency. *J Sci Food Agr* 84:1235-40

- Gonzalez A, Zhao M, Leavitt JM, Lloyd AM (2008) Regulation of the anthocyanin biosynthetic pathway by the TTG1/bHLH/Myb transcriptional complex in *Arabidopsis* seedlings. *Plant J* 53:814–827
- Goodrich J, Carpenter R, Coen ES (1992) A common gene regulates pigmentation pattern in diverse plant species. *Cell* 68: 955-64
- Gotoh O (2000) Homology-based gene structure prediction: Simplified matching algorithm using a translated codon (tron) and improved accuracy by allowing for long gaps. *Bioinformatics* 16:190-02
- Gotoh O (1990) Optimal sequence alignment allowing for long gaps. *Bull Math Biol* 52: 359-73
- Grosch W, Schieberle P (1997) Flavor of cereal products- a review. *Cereal Chem*74: 91-97
- Han KH, Sekikawa M, Shimada KI, Hashimoto M, Hashimoto N, Noda T, Tanaka H, Fukushima M (2006) Anthocyanin-rich purple potato flake extract has antioxidant Capacity and improves antioxidant potential in rats. *Br J Nutr* 96: 1125-33
- Han YP, Xu ML, Liu XY, Yan CJ, Korban SS, Chen XL, Gu MH (2004) Genes coding for starch branching enzymes are major contributors to starch viscosity characteristics in waxy rice (*Oryza sativa* L.). *Plant Sci* 166: 357-64
- Hu C, Zawistowski J, Ling WH, Kitts DD (2003) Black rice (*Oryza sativa* L. *indica*) pigmented fraction suppresses both reactive oxygen species and nitric oxide in chemical and biological model systems. *J Agric Food Chem* 51:5271-7
- Hu J, Anderson B, Wessler SR (1996) Isolation and characterization of rice *R* genes: Evidence for distinct evolutionary paths in rice and maize. *Genetics* 142: 1021-31
- Hu JP, Reddy VS, Wessler SR (2000) The rice *R* gene family: Two distinct subfamilies containing several miniature inverted-repeat transposable elements. *Plant Mol Biol*42: 667-78
- Hosseinian FS, Beta T (2007) Saskatoon and wild blueberries have higher anthocyanin contents than other Manitoba Berries. *J Agric Food Chem* 55(26): 10832-838

- Hosseinian FS, Li W, Beta T (2008) Measurement of anthocyanins and other phytochemicals in purple wheat. *Food Chem* 109: 916-24
- Huang Z, Wang B, Williams P, Pace RD (2009) Identification of anthocyanins in muscadine grapes with HPLC-ESI-MS. *LWT - Food Sci Technol* 42: 819-24
- Itani T, Tatemoto H, Okamoto M, Fujii K, Muto N (2002) A comparative study on antioxidative activity and polyphenol content of colored kernel rice. *J Jpn Soc Food Sci* 49: 540-3
- Itani T, Tamaki M, Hayata Y, Fushimi T, Hashizume K (2004) Variation of 2-acetyl-1-pyrroline concentration in aromatic rice grains collected in the same region in Japan and factors affecting its concentration. *Plant Prod Sci* 7: 178-83
- Jezussek M, Juliano BO, Schieberle P (2002) Comparison of key aroma compounds in cooked brown rice varieties based on aroma extract dilution analysis. *J Agric Food Chem* 50: 1101-5
- Ji Q, Lu JF, Chao Q et al. (2005) Delimiting a rice wide-compatibility genes 5n to a 50 kb region. *Theor Appl Genet* 111: 1495-503
- Jia N, Shu QY, Wang DH, Wang LS, Liu ZA, Ren HX (2008) Identification and characterization of anthocyanins by High-performance Liquid Chromatography–Electrospray Ionization–Mass Spectrometry in herbaceous peony species. *J Amer Soc Hort Sci* 133(3):418-26
- Jin QS, Waters D, Cordeiro GM, Henry RJ, and Reinke RF (2003) A single nucleotide polymorphism (SNP) marker linked to the fragrance gene in rice (*Oryza sativa* L.). *Plant Sci* 165: 359-64
- Jing P, Noriega V, Schwartz SJ, Guisti MM (2007) Effects of growing conditions on purple corn cob (*Zea mays* L.) anthocyanins. *J Agric Food Chem* 55:8625-29
- Kahkonen MP, Heinonen M (2003) Antioxidant activity of anthocyanins and their aglycones. *J Agric Food Chem* 51: 628-33
- Karge IWH, Schaefer EJ, Ordovas JM (1998) Quantification of mRNA by polymerase chain reaction (PCR) using an internal standard and a nonradioactive detection method. *Method Mol Biol* 110: 43-61

- Karplus K, Barrett C, Hughey R (1998) Hidden Markov models for detecting remote protein homologies. *Bioinformatics* 14: 846-56
- Keles Y, O'ncel I (2004) Growth and solute composition in two wheat species experiencing combined influence of stress conditions. *Russ J Plant Physiol* 51(2): 203-9
- Kent WJ (2002) BLAT --The BLAST-like alignment tool. *Genome Res* 12: 656-664
- Kim CK, Cho MA, Choi YH, Kim JA, Kim YH, Kim YK, Park SH (2011) Identification and characterization of seed-specific transcription factors regulating anthocyanin biosynthesis in black rice. *J Appl Genetics* 52:161-9
- Kim M, Kim H, Koh K, Kim H, Lee YS, Kim YH (2008) Identification and quantification of anthocyanin pigments in colored rice. *Nutr Res Pract* 2(1): 46-49
- King A, Young G (1999) Characteristics and occurrence of phenolic phytochemical. *J Am Diet Assoc* 99: 213-18
- Kinoshita T (1995) Report of committee on gene symbolization, nomenclature and linkage groups. *Rice Genet Newsl* 12: 149-153
- Kirstin W, Wootton M (2004) Flavour qualities of new Australian fragrant rice cultivars RIRDC Publication No 04/ 160 RIRDC Project No UNS-12A <http://www.rirdc.gov.au/reports/RIC/04-160sum.html>.
- Klein TM, Roth BA, Fromm ME (1989) Regulation of anthocyanin biosynthetic genes introduced into intact maize tissues by microprojectiles. *Proc Natl Acad Sci USA* 86: 6681-5
- Kuo SM, Chou SY, Wang AZ, Tseng TH, Chueh FS, Yen HE, et al. (2005) The betaine aldehyde dehydrogenase (*BAD2*) gene is not responsible for the aroma trait of SA0420 rice mutant derived by sodium azide mutagenesis. 5th International Rice Genetics Symposium. Philippines: IRRI pp. 166-67
- Lai P, Ken YL, Lu S, Chen HH (2009) Phytochemicals and antioxidant properties of solvent extracts from Japonica rice bran. *Food Chem* 117: 538-44

- Lee JH (2010) Identification and quantification of anthocyanins from the grains of black rice (*Oryza sativa* L.) Varieties. Food Sci Biotechnol 19(2): 391-7
- Lee JH, Kang NS, Shin SO, Shin SH, Lim SG, et al. (2009) Characterisation of anthocyanins in the black soybean (*Glycine max* L.) by HPLC-DAD-ESI/MS analysis. Food Chem 112: 226-231
- Li JH, Wang F, Liu WG, Jin SJ, Liu YB (2006) Genetic analysis and mapping by SSR marker for fragrance gene in rice. Yuefeng B Mol Plant Breed 4: 54-8
- Li W, Shan F, Sun S, Corke H, Beta T (2005) Free radical scavenging properties and phenolic content of Chinese black grained wheat. J Agric Food Chem 53(22): 8533-36
- Lloyd AM, Walbot V, Davis RW (1992) *Arabidopsis* anthocyanin production activated by maize regulators *R* and *CI*. Science 258: 1773-5
- Ludwig SR, Habera LF, Dellaporta SL, et al.(1989) *Lc*, a member of the maize *R* gene family responsible for tissue-specific anthocyanin production, encodes a protein similar to transcriptional activators and contains the myc-homology region. Proc Natl Acad Sci USA, 1989, 86: 7092—7096
- Ludwig SR, Wessler SR (1990) Maize *R* gene family: Tissue-specific helix-loop-helix protein. Cell 62: 849-51
- Lum MS, Chong PL (2012) Potential antioxidant properties of pigmented rice from Sabah, Malaysia. IJANS 1(2): 29-38
- Lorieux M, Petrov N, Huang N, Guiderdoni E, Ghesquiere A (1996) Aroma in rice: genetic analysis of a quantitative trait. Theor Appl Genet 93:1145-51
- Maga JA (1984) Rice product volatiles: a review. J Agric Food Chem 32:964-70
- Majoul T, Bancel E, Triboui E, Ben Hamida J, Branlard G (2003) Proteomic analysis of the effect of heat stress on hexaploid wheat grain: Characterization of heat-responsive proteins from total endosperm. Proteomics 3(2): 175-83
- Manach C, Scalbert A, Morand C, Remesy C, Jimenez L (2004) Polyphenols: Food sources and bioavailability. Am J Clin Nutr 79(5): 727-47

- Martin C, Paz-Ares J (1997) MYB transcription factors in plants. *Trends Genet* 13:67–73
- Mazza G, Cacace JE, Kay CD (2004) Methods of analysis for anthocyanins in plants and biological fluids. *J AOAC Int* 87(1): 129-45
- Mazza G, Miniati E (1993) Anthocyanins in Fruits, Vegetables, and Grains; CRC Press: Boca Raton, FL pp. 362
- Moko EM, Purnomo H, Kusnadi J and Ijong FG (2014) Phytochemical content and antioxidant properties of colored and non colored varieties of rice bran from Minahasa, North Sulawesi, Indonesia. *Int Food Res J* 21(3): 1053-59
- Monsoor MA, Proctor A (2004) Volatile component analysis of commercially milled head and broken rice. *J Food Sci* 69: 632-36
- Morishita T, Kojima Y, Maruta T, Nishizawa-Yokoi A, Yabuta Y, Shigeoka S (2009) Arabidopsis NAC transcription factor, ANAC078, regulates flavonoid biosynthesis under high-light. *Plant Cell Physiol* 50:2210-22
- Mpofu A, Sapirstein HD, Beta T (2006) Genotype and environmental variation in phenolic content, phenolic acid composition and antioxidant activity of hard spring wheat. *J Agric Food Chem* 54(4): 1265-70
- Muntana and Prasong (2010) Study on total phenolic contents and their antioxidant activities of Thai white, red and black rice bran extracts. *Pak J Biol Sci* 13(4): 170-74
- Naczki M, Shahidi F (2006) Phenolics in cereals, fruits and vegetables: Occurrence, extraction and analysis. *J Pharmaceut Biomed Anal* 41: 1523–1542
- Nagao S, Takahashi M (1963) Trial construction of twelve linkage groups in Japanese rice. *J Fac Agr Hokkaido Univ* 53: 76–131
- Nam SH, Choi SP, Kang MY, Koh HJ, Kozukue N, Friedman M (2006) Antioxidative activities of bran extracts from twenty one pigmented rice cultivars. *Food Chem* 94: 613-20
- Navarro M, Butardo V, Bounphanousay C, Reano R, Hamilton RS, Verhoeven H, Fitzgerald M (2007) The good, the BAD and the fragrant understanding fragrance in

rice. In: Proceedings of international network on quality rices- clearing old hurdles with new science: improving rice grain quality, IRRI, Philippines, Apr17-19, pp. 16-17

Nawar WW (1996) Lipids. In Food Chemistry; Fennema OR, Ed.; Dekker: New York pp. 225-319

Nesi N, Debeaujon I, Jond C, et al. (2000) The *TT8* gene encodes a basic helix-loop-helix domain protein required for expression of *DFR* and *BAN* genes in *Arabidopsis* Siliques. *Plant Cell* 12: 1863-78

Ning Z, Cox AJ, Mullikin JC (2001) SSAHA: A fast search method for large DNA databases. *Genome Res* 11: 1725-29

Niu X, Tang W, Huang W, Ren G, Wang Q, Luo D, et al. (2008) RNAi-directed down regulation of *OsBADH2* results in aroma (2-acetyl-1-pyrroline) production in rice (*Oryza sativa* L.). *BMC Plant Biol* 8:1-10

Nygaard A-B, Jorgensen CB, Cirera S, Merete F (2007) Selection of reference genes for gene expression studies in pig tissues using SYBR green qPCR. *Mol Biol* 8: 67-72

Oka HI (1988) Origin of Cultivated Rice. *Jpn Sci. Soc. Press, Elsevier, Amsterdam.*

Oki T, Masuda M, Kobayashi M, Nishiba Y, Furuta S, Suda I, Sato T (2002) Polymeric procyanidins as radical-scavenging components in red-hulled rice. *J Agric Food Chem* 50: 7524-29

Quattrocchio FM (1994) Regulatory genes controlling flower pigmentation in *Petunia hybrida*. Ph.D. thesis, Vrije University, Amsterdam

Quattrocchio F, Wing JF, Leppen H, Mol J, Koes RE (1993) Regulatory genes controlling anthocyanin pigmentation are functionally conserved among plant species and have distinct sets of target genes. *Plant Cell* 5:1497-12

Paule CM, Powers JJ (1989) Sensory and chemical examination of aromatic and nonaromatic rices. *J Food Sci* 54: 343-6

- Park, Sam Y, Kim SJ, Chang HI (2008) Isolation of anthocyanin from black rice (*Heugjinjubyeo*) and screening of its antioxidant activities. *Kor J Microbiol Biotechnol* 36(1): 55–60
- Parr AJ, Bolwell GP (2000) Phenols in the plant and in man. The potential for possible nutritional enhancement of the diet by modifying the phenols content or profile. *J Sci Food Agr* 80: 985-1012
- Paz-Ares J, Ghosal D, Wienand U, Peterson PA, Saedler H (1987) The regulatory c1 locus of *Zea mays* encodes a protein with homology to myb proto-oncogene products and with structural similarities to transcriptional activators. *EMBO J* 6: 3553-8
- Prathepha P (2008) Evaluation of the Fragrance Gene (*fgr*) in Self-Supplied Seed lots of Black Rice (*Oryza sativa* L) from Thailand and Laos. *Asian J Plant Sci* 7 (6):599- 602
- Prathepha P (2009) The *badh2* Allele of the Fragrance (*fgr/BADH2*) Gene Is Present in the Gene Population of Weedy Rice (*Oryza sativa f. spontanea*) from Thailand. *American-Eurasian J Agric & Environ Sci* 5 (5): 603-8
- Pearson WR, Lipman DJ (1988) Improved tools for biological sequence comparison. *Proc Natl Acad Sci* 85: 2444-8
- Philpott M, Gould KS, Lim C, Ferguson LR (2006) *In situ* and *in vitro* antioxidant activity of sweetpotato anthocyanins. *J Agric Food Chem* 54:1710-15
- Pohjanvirta R, Niittynen M, Lindén J, Boutros PC, Moffat ID, Okey AB (2006) Evaluation of various housekeeping genes for their applicability for normalization of mRNA expression in dioxin-treated rats. *Chem-Biol Interact* 160: 134-49
- Prior RL, Wu X (2006) Anthocyanins: Structural characteristics that result in unique metabolic patterns and biological activities. *Free Radical Res* 40(10): 1014-28
- Radicella JP, Brown D, Tolar LA, Chandler VL (1992) Allelic diversity of the maize *B* regulatory gene: different leader and promoter sequences of two *B* alleles determine distinct tissue specificities of anthocyanin production. *Genes Dev* 6: 2152-64
- Rahman Md M, Lee KE, Lee ES, Matin Md N, Lee DS, Yun JS, Kim JB, Kang SG (2013) The genetic constitutions of complementary genes *Pp* and *Pb* determine the

purple color variation in pericarps with cyanidin-3-O-glucoside depositions in black rice. *J Plant Biol* 56: 24-31

Rao B M, Shobha Rani N, Vijaya Saradhi UVR, Prasad GSV, Pandey MK, Vairamani M (2006) Quantification of principle aroma compounds and possibility of allelic/genic diversity in indigenous aromatic rices (*Oryza sativa* L.). 2nd International Rice Congress, New Delhi, Oct 6-11 pp. 316–7. Abstract

Reddy VS, Scheffler BE, Wienand U, Wessler SR, Reddy AR (1998) Cloning and characterization of the rice homologue of maize *C1* anthocyanin regulatory gene. *Plant Mol Biol* 36: 497-8

Robbins TP, Walker EL, Kermicle JL, Alleman M, Dellporta SL (1991) Meiotic instability of the R-r complex arising from displaced intragenic exchange and intrachromosomal rearrangement. *Genetics* 129: 271-83

Roth BA, Goff SA, Klein TM, Fromm ME (1991) *C1* and *R*-dependent expression of the maize *Brl* gene requires sequences with homology to mammalian *myb* and *my* binding sites. *Plant Cell* 3: 317-25

Roy S, Banerjee A, Pattanayak A, Roy SS, Rathi RS, Misra AK, Ngachan SV, Bansal KC (2014) Chakhao (delicious) rice landraces (*Oryza sativa* L.) of North-east India: collection, conservation and characterization of genetic diversity. *Plant Genet Resour: Charact Uti* 12(3): 264-72

Roya K, Fatemeh G (2013) Screening of total phenol and flavonoid content, antioxidant and antibacterial activities of the methanolic extracts of three silene species from Iran. *Intl J Agri Crop Sci* 5 (3): 305-12

Ryu SN, Park SZ, Ho CT (1998) High performance liquid chromatographic determination of anthocyanin pigments in some varieties of black rice. *J Food Drug Anal* 6:729-36

Saenkod C, Liu Z, Huang J and Gong Y (2013) Anti-oxidative biochemical properties of extracts from some Chinese and Thai rice varieties. *Afr J Food Sci* 7(9): 300-5

- Saitoh K, Onishi K, Mikami I, et al. (2004) Allelic diversification at the *C* (*OsCI*) locus of wild and cultivated rice: nucleotide changes associated with phenotypes. *Genetics* 168: 997-1007
- Sakthivel K, Neeraja CN, Shobha Rani N, Kaladhar K, Sundaram RM, Balachandran SM, et al. (2006) Allele mining for aroma gene *BAD-2* in Indian rice cultivars. 2nd International Rice Congress, New Delhi, Oct 9-13 pp. 316. Abstract.
- Sakthivel K, Sundaram RM, Rani, Balachandran SM, Neeraja CN (2009) Genetic and molecular basis of fragrance in rice. *Biotechnology Advances* 27: 468-73
- Sakamoto W, Ohmori T, Kageyama K et al. (2001) The purple leaf (*Pl*) locus of rice: *Plw* allele has a complex organization and includes two genes encoding basic helix-loop-helix proteins involved in anthocyanin biosynthesis. *Plant Cell Physiol* 42(9): 982-91
- Seeram NP, Schutzki R, Chandra A, Nair MG (2002) Characterization, quantification, and bioactivities of anthocyanins in *Cornus* species. *J Agric Food Chem* 50: 2519-23
- Schieberle P (1995) Quantitation of important roast-smelling odorants in popcorn by stableisotopedilution assays and model studies on flavor formation during popping. *J Agric Food Chem* 50:2442-8
- Shen YJ, Jiang H, Jin JP, et al. (2004) Development of genome-wide DNA polymorphism database for map-based cloning of rice genes. *Plant Physiol* 135: 1198-205
- Sheng T, Joost K, Maarten K, Sjef S (2005) Sucrose-Specific Induction of Anthocyanin Biosynthesis in *Arabidopsis* requires the MYB75/PAP1 gene. *Plant Physiol* 139:1840-52
- Shi W, Yang Y, Chen S, Xu M (2008) Discovery of a new fragrance allele and the development of functional markers for the breeding of fragrant rice varieties. *Mol Breeding* 22:185-92
- Shien MW, Wessler SR, Raikhei NV (1993) Nuclear targeting of the maize *R* protein requires two nuclear localization sequences. *Plant Physiol* 101: 353-361

- Shipp J, Abdel-Aal E M (2010) Food applications and physiological effects of anthocyanins as functional food ingredients. *The Open Food Science Journal* 4: 7-22
- Singh MR, Sharma PP (1998) Rice germplasms of Manipur: Varietal description and cataloguing. Plant Breeding Technical Report No. 1, Central Agricultural University, Imphal, India pp. 75 & 88
- Singh RK, Baghel SS (2003) Aromatic Rices of Manipur, A Treatise on the Scented Rices of India (1st. ed.), New Delhi: Kalyani Publishers, pp. 347-35
- Smith TF, Waterman MS (1981) Identification of common molecular subsequences. *J Mol Biol* 147: 195-7
- Sompong R, Siebenhandl-Ehn S, Linsberger-Martin G, Berghofer E (2011) Physicochemical and antioxidative properties of red and black rice varieties from Thailand, China and Sri Lanka. *Food Chem* 124: 132-40
- Sood BC, Siddiq EA (1978) A rapid technique for scent determination in rice. *Indian J Genet Plant Breed* 38: 268-71
- Sultana B, Anwar F, Ashraf M (2009) Effect of Extraction Solvent Technique on the Antioxidant Activity of Selected Medicinal Plant Extracts. *Molecules* 14:2167-2180.
- Sun SH, Gao FY, Lu XJ, Wu XJ, Wang XD, Ren GJ, Luo H (2008) Genetic analysis and gene finemapping of aroma in rice (*Oryza sativa* L. Cyperales, Poaceae). *Genet Mol Bio* 131: 532-8
- Sutharut J, Sudarat J (2012) Total anthocyanin content and antioxidant activity of germinated colored rice. *Int Food Res J* 19(1): 215-21
- Suwansri S, Meullenet JF, Hankins JA, Griffin K (2002) Preference mapping of domestic/imported Jasmine rice for U.S.-Asian consumers. *J Food Sci* 67: 2420-31
- Suzuki M, Kimura T, Yamagishi K, Shinmoto H, Yamaki K (2004) Comparison of mineral contents in 8 cultivars of pigmented brown rice. *Nippon Shokuhin Kagaku Kogaku Kaishi* 51: 424-427.

- Srivong P, Wangsomnuk P, Pongdontri P (2008) Characterization of a Fragrant Gene and Enzymatic Activity of Betaine Aldehyde Dehydrogenase in Aromatic and Nonaromatic Thai Rice Cultivars. *KKU Sci J* 36(4) 290-301
- Srivong P, Waihalong P, Pongdontri P, Wangsomnuk P (2006) Comparison of partial BADH2 transcripts of Khao Dok Mali 105 and its mutants of different aroma levels. Poster abstract P202 in Joint third AOHUPO and forth structural biology and functional genomics conference, December 4-7, 2006, University cultural centre, National University of Singapore, Singapore pp 294
- Szabo MR, Iditoiu C, Chambre D, Lupea AX (2007) Improved DPPH determination for antioxidant activity spectrophotometric assay. *Chem Papers* 61: 214-6
- Takashi I, Bing X, Yoichi Y, Masaharu N, Tetsuya K (2001). Antioxidant Activity of Anthocyanin Extract from Purple Black Rice. *J Med Food* 4:211–218
- Tananuwong K, Tewaruth W (2010) Extraction and application of antioxidants from black glutinous rice. *LWT - Food Sci Technol* 43: 476- 481
- Tragoonrung S, Sheng JQ, Vanavichit A (1996) Tagging an aromatic gene in lowland rice using bulk segregant analysis. *Rice Genetics III IRRI* p. 613-8
- Tsuda T, Horio F, Uchida K, Aoki H, Osawa T (2003) Dietary cyanidin 3-O- β -D-glucoside-rich purple corn color prevents obesity and ameliorates hyperglycemia. *J Nutr* 133:2125-30
- Tsugita T (1986) Aroma of cooked rice. *Food Re Int1*: 497-520
- Vanavichit A, Yoshihashi T, Wanchana S, Areekit S, Saengsraku D, Kamolsukyonyong
- Walter M, Marchesan E (2011) Phenolic Compounds and Antioxidant Activity of Rice. *Braz Arch Biol Technol* 54(1): 371-7
- Wanchana S, Kamolsukyonyong W, Ruengphayak S, Toojinda T, Tragoonrung S, Vanavichit A (2005) A rapid construction of a physical contig across a 4.5 cM region for rice grain aroma facilitates marker enrichment for positional cloning. *Science Asia* 31:299-306

- Wang C, Shu Q (2007) Fine mapping and candidate gene analysis of purple pericarp gene *Pb* in rice (*Oryza sativa* L.) Chin Sci Bull 52(22): 3097-104
- Wang H (2014) Rapid quantitative analysis of individual anthocyanin content based on high-performance liquid chromatography with diode array detection with the pH differential method. J Sep Sci 37: 2535-44
- Waterhouse AL (2001) Determination of total phenolics. In: Wrolstad RE, Acree TE, An H, Decker EA, Penner MH, Reid DS, Schwartz SJ, Shoemaker CF, Sporns P (eds) Current Protocols in Food Analytical Chemistry, 1st edn. Wiley, New York pp. II.1.1-11.1.2.
- Widjaja R, Craske JD, Wootton M (1996) Comparative studies on volatile components of non-fragrant and fragrant rices. J Sci Food Agric70:151-61
- Wolf M (2015) Health Benefits of Black Rice. DOI Demand Media, Jillian Michaels 7/25/2015
- Wu L, Zhai M, Yao Y, Dong C, Shuang S and Ren G (2013). Changes in nutritional constituents, anthocyanins, and volatile compounds during the processing of black rice tea. Food Sci Biotechnol 22(4): 917-923
- Wu X, Prior RL (2005) Systematic Identification and characterization of anthocyanins by HPLC-ESI-MS/MS in common foods in the United States: Fruits and Berri. J Agric Food Chem 53: 2589-99
- Xia M, Ling WH, Ma J, Kitts DD, Zawistowsk J (2003) Supplementation of diets with black rice pigment fraction attenuates atherosclerotic plaque formation in apolipoprotein E-deficient mice. J Nutr 133:744-51
- Xia X, Ling W, Ma J, Xia M, Hou M, Wang Q, Zhu H and Tang Z (2006) An anthocyanin-rich extract from black rice enhances atherosclerotic plaque stabilization in apolipoprotein E-deficient mice. J Nutr 136: 2220-5
- Xie DY, Dixon RA (2005) Proanthocyanidin biosynthesis – still more questions than answers? Phytochem 66: 2127-44

- Xu Z (2010) Whole Grain Council, Black Rice Rivals Blueberries as antioxidant source, Louisiana State University Agricultural Center Study, Presentation at the National Meeting of the American Chemical Society, Boston MA
- Yang DS, Lee K, Jeong O, Kim K, Kays SJ (2008a) Characterization of Volatile Aroma Compounds in Cooked Black Rice. *J Agric Food Chem* 56: 235-40
- Yang DS, Lee K, Kim K, Kays SJ (2008c) Site of Origin of Volatile Compounds in Cooked Rice. *Cereal Chem* 85(5):591-8
- Yang DS, Lee KS, Kay SJ (2010) Characterization and discrimination of premium-quality, waxy, and black-pigmented rice based on odor-active compounds. *J Sci Food Agric* 90: 2595-601
- Yang DS, Shewfelt RL, Lee K, Kays SJ (2008b) Comparison of Odor-Active Compounds from Six Distinctly Different Rice Flavor Types. *J Agric Food Chem* 56: 2780-7
- Yang TS (2007) Rice Flavor Chemistry. The University of Georgia pp. 54
- Yano M, Shimosaka E, Saito A, Nakagahra M (1992) Linkage analysis of a gene for scent in indica rice variety, Surjamkhi, using restriction fragment length polymorphism markers. *Japanese J Breed* 41:338-9
- Yawadio R, Tanimori S, Morita N (2007) Identification of phenolic compounds isolated from pigmented rices and their aldose reductase inhibitory activities. *Food Chem* 101: 1616-25
- Yodmanee S, Karrila TT, Pakdeechanuan P (2011) Physical, chemical and antioxidant properties of pigmented rice grown in Southern Thailand. *International Food Research Journal* 18(3): 901-6
- Yoshihashi T (2002) Quantitative analysis of 2-acetyl-1-pyrroline of an aromatic rice by stable isotope dilution method and model studies on its formation during cooking. *J Food Sci* 67(2): 619-22
- Yoshimura A, Ideta O, Iwata N (1997) Linkage map of phenotype and RFLP markers in rice. *Plant Mol Biol* 35: 49-60

- Yujie F, Kabin X, Xin H, Honghong H, Lizhong X (2010) Systematic analysis of GT factor family of rice reveals a novel subfamily involved in stress responses. *Mol Genet Genomics* 283:157–169
- Zhang M, Guo B, Zhang R, Chi J, We Z, Xu Z, Zhang Y, Tang X (2006) Separation, purification and identification of antioxidant compositions in black rice. *Agric Sci China* 5: 431-40
- Zhang M, Peng Z, Xu Y (1995) Genetic effects on pigment content in pericarp of black rice grain. *Chinese Journal of Rice Science* 9(3):149-155
- Zhang MW, Guo BJ, Peng ZM (2004) Genetic effects on Fe, Zn, Mn and P contents in Indica black pericarp rice and their genetic correlations with grain characteristics. *Euphytica* 135: 315-323
- Zhang MW, Guo BJ, Peng ZM (2005) Genetic effects on grain characteristics of indica black rice and their uses on indirect selections for some mineral element contents in grains. *Genet Resour Crop Ev* 52:1121–1128
- Zhang Z, Schwartz S, Wagner L, Miller W (2000) A greedy algorithm for aligning DNA sequences. *J Comput Biol* 7: 203–214
- Zhou Z, Robards K, Helliwell S, Blanchard C (2002) Composition and functional properties of rice. *Int J Food Sci Technol* 37: 849-68
- Zhuang JY, Yang CD, Qian HR, et al. (1996) Linkage analysis of RFLP markers and the gene for purple pericarp of rice (in Chinese). *Acta Genet Sin* 23(5): 372-5
- Zhuang JY, Yang CD, Qian HR, Zhao CZ, Zheng KL (1994) Somaclonal variation facilitating integration of classical and RFLP markers on chromosome 4 of rice, *Rice Genetics Newsletter* 11:114-116, Gramene Literature
- Zubair M, Anwar F, Shahid SA (2012) Effect of extraction solvents on phenolic and antioxidant activity of selected varieties of Pakistani rice (*Oryza sativa*). *Int J Agr Bio* 14: 935-40